

Exhibit D



2901 North Central Avenue
Suite 2000
Phoenix, AZ 85012-2788

T +1.602.351.8000
F +1.602.648.7000
PerkinsCoie.com

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Tyler R. Bowen
TBowen@perkinscoie.com
D. +1.602.351.8448
F. +1.602.648.7007

Mr. Alex Chan
Devlin Law Firm LLC
1526 Gilpin Avenue
Wilmington, DE 19806
AChan@devlinlawfirm.com

Re: Ocean Semiconductor's infringement contentions in *Ocean Semiconductor LLC v. STMicroelectronics, Inc.*, No. 6:20-cv-1215 (W.D.Tex.)

Dear Mr. Chan,

ST Inc. received Ocean's December 13, 2021 letter responding to ST Inc.'s October 26, 2021 letter about numerous deficiencies in Ocean's Preliminary Infringement Contentions ("PICs"). Ocean argues that its PICs are sufficient despite repeated demonstrations that they are not as set forth in prior correspondence. Ocean's contentions do not provide sufficient notice of its infringement theories. As yet another example of this insufficiency, Ocean improperly relies on boilerplate and conclusory allegations of infringement under the doctrine of equivalents without providing any basis in fact. Such barebones allegations are legally inadequate. *See, e.g., Texas Instruments Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1567 (Fed. Cir. 1996); *WSOU Investments LLC v. OnePlus Tech. (Shenzhen) Co., Ltd.*, Nos. W-20-CV-00952-ADA, W-20-CV-00953-ADA, W-20-CV-00956-ADA, W-20-CV-00957-ADA, W-20-CV-00958-ADA, 2022 WL 174517, at *3 (W.D. Tex. Jan. 18, 2022); *Sycamore IP Holdings LLC v. AT&T Corp.*, No. 2:16-CV-588-WCB, 2017 WL 4517953, at *3 (E.D. Tex. Oct. 10, 2017) (collecting cases).

In addition, Ocean's response suggests that ST Inc. cannot raise claim construction issues as this case moves forward. As explained in a letter to Ocean dated December 6, 2021, Ocean has not served final infringement contentions or expert reports to indicate how broadly or narrowly Ocean will seek to interpret the plain and ordinary meaning of claim terms. Ocean's muddled PICs provide no such information. Given the ambiguity, as explained to the Court during the *Markman* hearing, the defendants in cases brought by Ocean reserve the right to raise claim construction issues should Ocean embrace interpretations later in the case that are contrary to the plain and ordinary meaning of claim terms. The Court agreed that if there are disputes, it will address them before trial. Dec. 9, 2021 *Markman* Hr'g Tr. at 6-10.

Below ST Inc. responds in detail to Ocean's December 13, 2021 letter.

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'651 patent

Putting aside that the asserted '651 patent claims are plainly invalid (as ST Inc. has explained), Ocean's latest response once again confirms (i) the fundamental problems with Ocean's infringement theory and (ii) that Ocean's contentions fail to put ST Inc. on notice of alleged infringement.

As a threshold matter, Ocean's response continues to improperly maintain that Ocean does not need to identify a single TWINSCAN tool because the asserted claims are method claims. But the type of claim is of no moment. The asserted claims require that *each* step is performed on the *same* "wafer stage" within a single "process chamber." Claim 72, for example, states:

72. A method, comprising:

providing a *process chamber comprised of a wafer stage*, said wafer stage having a surface that is adjustable and located in a first plane;

adjusting said surface of *said wafer stage* by raising said surface of said wafer stage to a position wherein said surface of said wafer stage is positioned in a second plane that is offset from and approximately parallel to said first plane;

positioning a wafer on *said wafer stage*; and

performing a process operation on said wafer positioned on *said wafer stage*.

It is simply not plausible for Ocean to assert that the claims cover different tools with different wafer stages when the claims clearly are limited to a single wafer stage within a single process chamber.

Turning to the specific claims and issues that remain after the Court's claim construction ruling:¹

¹ We address herein claims 72-74 and 77-80, as the Court's ruling confirms that Ocean's theories for the other claims are incorrect. First, the Court found indefinite claim 31 and its dependents. Accordingly, ST Inc. understands that Ocean no longer asserts infringement for these claims. Second, as ST Inc. has explained, the Court also resolved the "pneumatic cylinders" issue in ST Inc.'s favor, thereby mooted claims 19-24, 75, and 81. If Ocean continues to maintain infringement of claims 19-24, 75, or 81, ST Inc. will address Ocean's response for those claims at a later time.

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- Process Chamber (asserted claims 72-74, 77-80): While ST Inc. appreciates that asserted claim 31 and its dependents have been found indefinite, the “process chamber” issue is not “moot.” Ocean’s response again fails to address the issue with respect to the remaining claims (i.e., claims 72-74 and 77-80). As ST Inc. has explained in prior correspondence, Ocean’s contentions do not put ST Inc. on notice of what Ocean asserts is the “process chamber.” Simply put, there is no way for ST Inc. to tell what Ocean believes is the “process chamber.”
- Deposition/Etching Processes within the Process Chamber (asserted dependent claim 80): As discussed directly above, Ocean’s response still fails to explain how the accused TWINSCAN includes a “process chamber” (for independent claim 77), let alone a deposition or etching process within that chamber (for dependent claim 80). Ocean cannot ignore the fact that dependent claim 80 narrows independent claim 77. Yet, Ocean again appears to base its assertion on the incorrect premise that some separate undefined tool may perform the claimed deposition or etching process. As to Ocean’s citations to its PICs, they confirm ST Inc.’s position that any deposition or etching is performed on a *separate* tool from the TWINSCAN with the alleged “wafer stage.”
- Wafer Stage Adjustment (asserted dependent claims 73 and 78): Ocean’s response does not rebut ST Inc.’s explanation that Ocean has failed to provide any plausible allegation in its contentions that any wafer stage adjustment (i.e., raising or lowering in claims 73 and 78, respectively) occurs before the wafer is placed on the stage.

'330 patent

Ocean’s response continues to miss the mark. Ocean must prove that the accused products are manufactured using the accused tools in a way that practices the patented methods. Ocean’s PICs contain no evidence that any manufacturer uses the YieldStar to make the accused products in a way that practices the claimed methods. And Ocean will not be able to find such evidence. For example, as Ocean knows, TSMC recently produced a declaration from the Manager of its R&D Lithography metrology team stating that TSMC has never used the YieldStar for CD measurement in its production line because the YieldStar’s CD measurement capabilities do not meet TSMC’s technical requirements. TSMC_0000031. Ocean therefore cannot demonstrate that the making, using, sale, offer for sale, or importation of accused products manufactured by TSMC infringes the ’330 patent. Ocean’s contention that the Yieldstar is capable of performing the patented methods, even if true, is legally irrelevant. Given this evidence—and Ocean’s deficient contentions—ST Inc. renews its request that Ocean drop its allegations relating to the ’330 patent.

Ocean’s reference to ST Inc.’s motion to dismiss under § 271(g) is also legally irrelevant. That motion does not seek to dismiss claims relating to the ’330 patent under § 271(g). And even if it

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had, Ocean’s response that a product is “made by” the claimed processes, as that term is used in § 271(g), is wholly separate from whether the claimed processes are actually used to make the accused products. Ocean must prove both to prevail, and its PICs do not even attempt to show actual use of the patented methods to make the accused products. For example, Ocean must point to specific structures from the accused products themselves that are used to concurrently measure CD and overlay. Ocean has not done so, and ST Inc. therefore has no notice of Ocean’s contentions with respect to what structures are used.

’402 patent

Ocean’s response mischaracterizes the issues that ST Inc. raised in its most recent letter. Particularly, Ocean attempts to pivot away from its failure to identify any theory under which the claim is practiced toward a battle over whether Ocean has met its burden of proof. The bottom line is that while Ocean has identified several references that describe how certain accused third-party software operates in different conditions, Ocean has failed to stitch together a unified theory for any system that includes evidence of the method actually performed during manufacturing.

This error in analysis is abundantly clear from Ocean’s unintelligible analysis of the sending step. The claims require “sending the state data from the first interface to a fault detection unit.” This sending step is defined by the following substeps: (1) sending state data from “the first interface” to a data collection unit, (2) accumulating the state data at the data collection unit, (3) translating the state data from a first communications protocol to a second communications protocol, and (4) sending the translated state data from the data collection unit to the fault detection unit. The claims require “state data.” For both the E3 system and the Exensio system, Ocean has failed to clearly articulate what the “state data” is, as opposed to the voluminous amount of other data that is utilized by these complicated systems.

Ocean has not presented a coherent theory for how sending is carried out in either accused system. For example, in the E3 system, Ocean points to a translating step that allegedly occurs on an external “Raspberry Pi Box.” Not only is this specific embodiment highly irrelevant because it was designed and implemented by a “cost-conscious customer” that is not alleged to have manufactured any accused products, but the accused translation step clearly does not occur during a sending operation between the first interface and the fault detection unit.

Ocean’s analysis for Exensio fares no better. Indeed, Ocean quotes overly broad statements (e.g., “Exensio database stores ‘all types of semiconductor manufacturing and testing data’”) without specifically identifying any relevant “state data” or even mentioning communications protocols.

The PICs are equally ambiguous and deficient with respect to the alarm signal steps. Indeed, for both the E3 system and the Exensio system, Ocean does not even attempt to distinguish a fault

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detection unit from an advanced process control framework, nor does Ocean explain the signal path for the alleged alarm.

It is too late in the litigation for Ocean not to have a cognizable infringement theory. If Ocean maintains that it has a good faith basis for accusing any tool of infringing the method steps claimed in the '402 patent, Ocean must precisely answer the following questions for any accused system:

- What is the accused “state data” for an alleged performance of the claimed method?
- What is the claimed “first interface” in an actual tool that has allegedly performed the claimed method?
- For the identified “state data,” what is its “first communications protocol” in the alleged setup that practices the claimed method?
- For the identified “state data,” what is its “second communications protocol” in the alleged setup that practices the claimed method?
- Where and how is the “state data” translated from a first to a second communications protocol?
- What is the accused “data collection unit?”
- How is the “state data” accumulated at the “data collection unit?”
- What is the accused “fault detection unit?”
- How does the system use the translated state data to determine that a fault condition exists?
- What is the accused “advanced process control framework?”
- What is the accused “alarm signal?”
- What data format is the accused “alarm signal” in?
- How is the “alarm signal” transmitted from the accused “advanced process control framework” to the alleged “fault detection unit?”
- What signal “reflective of the predetermined action” is sent from the accused advanced process control framework to the accused “first interface?”

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'538 patent

To be clear, ST Inc.’s position is that the E3, Exensio, and LineWorks systems are not used in an infringing manner. Ocean has not shown otherwise. Ocean’s response only magnifies the issues with its deficient contentions. Specifically, Ocean contends that motion to dismiss briefing somehow provides evidence that the E3, Exensio, and LineWorks systems were used to manufacture specific accused products. But the briefing says no such thing. And as ST Inc. explained in its prior correspondence, Ocean’s PICs make no showing that any accused product was manufactured using any of the E3, Exensio, and LineWorks systems. Ocean offers no rebuttal. Instead, it simply alleges that a huge swath of products infringe without providing any indication that any specific accused product was actually manufactured using the E3, Exensio, or LineWorks systems. This is exactly the type of “bare assertion” at issue in *Technology Props. Ltd. LLC v. Samsung Electronics Co.*, 114 F. Supp. 3d 842, 851-852 (N.D. Cal. 2015). Ocean has failed to provide ST Inc. with adequate notice of its infringement theory.

Ocean’s statement that its “PICs show that ‘third-party software can potentially perform certain functions’” highlights the problem. What is “potentially” possible is neither true nor even likely to be true. As it stands, Ocean’s PICs only allege it is possible that accused products are manufactured using the E3, Exensio, or LineWorks systems in a way that might infringe. That is insufficient. Ocean must show whether the specific accused products are “made by a process patented in the United States,” not whether non-specific products could be made by such a process. 35 U.S.C. § 271(g).

All of Ocean’s allegations regarding the ’538 patent remain deficient.

'691 patent

Ocean’s response regarding the ’691 patent also accentuates problems that persist with its PICs. Ocean alleges that “the offending E3 system allows engineers to ‘analyze sensor data.’” Ocean has identified no product manufactured by a system that analyzes sensor data in the manner claimed in the ’691 patent. This is akin to the *ConnectTel* case cited in prior correspondence—where the defendants provided “generic charts”—because Ocean’s PICs do not reflect the actual configuration and/or usage of any system used to manufacture any product, let alone one manufactured according to the claimed process.

Ocean also mischaracterizes ST Inc.’s previous description that “collected metrology data may be used in the analysis of a plurality of tools.” This statement does not establish the feature of collecting metrology data from a plurality of tools, as required by the claims. ST Inc. has fulfilled its discovery obligation in this case, and it is not ST Inc.’s burden to demonstrate non-infringement

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of the asserted claims of the '691 patent. Rather, it is Ocean's burden to demonstrate that every element of the asserted claims is practiced. Ocean's lack of evidence for this element is telling.

Ocean still fails to specifically identify any "filtering" performed by the accused products. Ocean relies on its "explanation" that "metrology data can be filtered using the 'VM model.'" As an initial matter, "can be" is not "does." Further, the "VM model" that Ocean identified includes a large number of operations, and Ocean fails to specify any particular operation within the "VM model" that corresponds to "filtering." Ocean's further explanation that "filtering" is shown based on "the FD outputs [being] tuned" is equally inapposite. Tuning an output is not "filtering," nor does it necessarily require "filtering." Ocean alleges that "ST Inc.'s contention that Ocean 'provides no evidence of how the VM model work[s]' is incorrect," and yet Ocean fails to identify any such evidence in its response. Regarding the other three examples relied on by Ocean, they likewise fail to identify any filtering operation. In one example, Ocean points to "fault detection and classification (FDC) algorithms" that show a box with input data and output data without any explanation or demonstration of filtering. In another example, Ocean asserts in its PICs that "designating P1 for sensor 'Process Pressure'" is an example of filtering metrology data, but again fails to explain or demonstrate how such a designation could be filtering. In a further example, Ocean asserts that filtering is performed during the processing shown in the "Wafer Yield Management Service," but yet again fails to explain or demonstrate any specific filtering in that service.

As to Exensio and "filtering," Ocean only repeats its deficient statements from the PICs. Ocean asserts that "cleaning, aligning, and interpreting" equate to filtering "based on the collection purpose data." Even if those operations could credibly be deemed "filtering," there is no evidence in Ocean's contentions that those operations are "based on [] collection purpose data." Indeed, Ocean's PICs regarding these alleged operations do not reference collection purpose data or allege that the "cleaning, aligning, and interpreting" operations are based on collection purpose data. Ocean's only other alleged operation for the "filtering" step is a reference to "multiple algorithms, machine learning" "to filter the metrology data based on the collection purpose data." The wafer maps Ocean refers to in its response do not appear in the PICs for claim 1 in the row listing evidence for "filtering the metrology data based on the collection purpose data." ST Inc. reserves the right to object to any new theory based on this mapping. Nevertheless, the presentation of "wafer maps" does not indicate any filtering based on collection purpose data for the purpose of "conducting a process control activity."

As to Exensio and "process control activity," "determining whether to downgrade or scrap" is not a process control activity involved in the production of the wafer but a choice as to what to do with a product after the process is over. "[I]dentif[ying] invisible defects" likewise is an analysis of the end product and does not itself imply or require changing process control. Similarly, "allow[ing] for quick actions" is not an affirmative process control activity. And "optimiz[ing] system

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“performance” is a vague description that does not provide any specificity from which to identify any “process control activity.” Ocean’s allegations are plainly insufficient.

As to camLine’s LineWorks system, Ocean claims that its PICs “explicitly state how filtering is done” because “the camLine system performs trend analysis based on high-performance data analytics algorithms so that it necessarily filters the metrology data based on collection purpose data in order to obtain the trend analysis.” However, while Ocean states that the LineWorks system filters data by “link[ing] the metrology results to the substrates, the production process, and other results,” Ocean again fails to explain or demonstrate how such “linking” acts as the filtering step required by the claims. The system’s ability to collect and analyze data does not demonstrate that the system performs “filtering the metrology data based on the collection purpose data.” As such, Ocean’s allegations as to LineWorks remain deficient.

’305 and ’248 patents

Ocean’s response with respect to the ’305 and ’248 patents similarly underscores the deficiencies in its PICs and its flawed infringement theory. All asserted claims of the ’305 and ’248 patents are method claims directed to “scheduling in an automated manufacturing environment.” Ocean’s allegation of infringement under 35 U.S.C. § 271(g) is untenable because the asserted claims are not product-by-process claims as required by the statute. Indeed, none of the asserted claims recites any steps for fabricating or manufacturing semiconductor devices or anything else. Not surprisingly, Ocean’s PICs do not identify any step that is performed by accused software that could be considered fabrication or manufacture of an integrated circuit.

Ocean has a much more significant problem: its PICs do not establish that any manufacturer has performed the steps of the asserted claims, as Ocean is required to prove for infringement. Ocean does not even refer to any entity involved in the manufacture of the accused products. Instead, Ocean refers to myriad documents that describe capabilities of the accused software. This is insufficient as a matter of law to prove that a manufacturer uses the software in a manner that infringes the claimed methods.

Ocean characterizes the many documents it relies upon “as a structured collection describing the full capabilities of the Accused Tools and how those tools perform the elements [sic] of the asserted claims.” This assertion misses the mark. First, Ocean’s PICs never refer to “Accused Tools,” only “Infringing Instrumentalities.” Second, none of the documents describes how any manufacturer performs any steps of the asserted claims. The PICs focus on the “provision or importation” of “Infringing Instrumentalities” without describing how any accused product is made. Ocean must specify the actual manufacturing process to support its assertion that the accused products infringe method claims. It falls short of this requirement.

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Accordingly, Ocean's response has not resolved any of the glaring deficiencies in its contentions for the '305 and '248 patents.

'097 patent

In its prior correspondence, ST Inc. pointed out that Ocean has failed to provide evidence to suggest that the accused products are made using a process claimed by the '097 patent. In particular, ST Inc. identified an isotropic etch step as a limitation for which Ocean fails to provide any support. Ocean counters by pointing to two references: Yoshio Nishi and Robert Doering, *Handbook of Semiconductor Manufacturing Technology* (2017) and S. Barnola et al., *Plasma etching & integration challenges using alternative patterning techniques for 11nm node & beyond*, 9054 Proc. SPIE (2014). But as in its PICs, Ocean again fails to explain how these references establish that the accused products were made using the claimed isotropic etch. There is no indication that the references are linked in any way to the manufacturing of the accused products. One is a textbook and the other is an article. Despite ST Inc. having raised this issue twice before, Ocean still has not attempted to connect either reference to the process used to make the accused products.

Ocean nevertheless asserts that it has sufficiently provided notice of an infringement theory. That is untrue. Ocean cannot provide notice of infringement unless it articulates how, *based on evidence*, a single process used to manufacture the accused products infringes every limitation of the claims of the '097 patent. Ocean has not done so here. Instead, it points to general disclosures with no connection whatsoever to the process used to make the accused products.

ST Inc. continues to reserve the right to seek relief from the Court should Ocean fail to withdraw or otherwise remedy its defective Infringement Contentions. ST Inc. also reserves the right to address the scope of any claim term that carries its plain and ordinary meaning to the extent Ocean later interprets the term in a manner inconsistent with that meaning.

Sincerely,



Tyler R. Bowen

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